

## **REMARKS**

Claims 5-14 and 18-28 are pending in the present application. Claims 5-14 are rejected, claims 15-17 have been cancelled, and new claims 26-28 have been added.

### **Objection to Claims 23 and 25**

Claims 23 and 25 have been amended to obviate the indefiniteness objection.

### **Rejection of Claims 15-17 as Indefinite**

Claims 15-17 have been cancelled, thereby obviating this rejection.

### **Rejection of Claims 5, 6, 9-10 and 15-17 as Anticipated or Obvious**

Claims 5, 6, 9-10 and 15-17 are rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 102(b), as obvious over Yamada Nobuo (JP 6-128890). Claims 15-17 have been cancelled, as indicated above.

Claim 5 is directed to a method for improving discoloration of mechanical pulp over time by subjecting a bleached mechanical pulp to irradiation with UV and/or visible light in the presence of at least one compound selected from the group consisting of reducing agents, peroxides and hydrogen-donating organic compounds, which achieves an anti-fading effect in the bleached pulp so treated.

The Examiner relies (page 2 of the Office Action) on a JPO computer translation<sup>1</sup> of the first sentence of paragraph 0007 of Yamada Nobuo, which translation was cited in the first Office Action, to interpret the disclosure of Yamada Nobuo (JP 6-128890) as implicitly including bleached pulp. However, submitted herewith, as Exhibit A, is an English translation of the first sentence of paragraph 0007 signed by the translator, Tatsuro Takahashi

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<sup>1</sup> See note 1 at top of page 1 of JPO/ NICPI translation

(hereinafter “Takahashi translation”), which makes it clear that the Yamada patent is treating unbleached pulp, which is thereafter bleached. The Takahashi translation states that the first sentence of paragraph [0007] is:

The pulp, which is subjected to bleaching, as used in this invention, is not limited, and this invention is intended to use all pulp, such as mechanical pulp, chemical pulp recycled pulp and the like.

Thus, the Takahashi translation indicates that the “pulp, which is subjected to bleaching”, i.e., the pulp to be bleached which can be any pulp. However, in contradistinction thereto, the JPO computer translation which translates the first sentence of paragraph [0007] as:

There is nothing that specifies this invention as a bleached pulp-ed, and it is aimed at all pulp, such as mechanical pulp, chemical pulp, and recycled pulp.

is confusing and erroneous, leaving open to speculation as to exactly which is meant by such statement. Note 1 at the top of page 1 of the JPO computer translation warns that the translation “may not reflect the original precisely.” Accordingly, when Yamada Nobuo is properly translated, it is apparent that the pulp which is subjected to bleaching is unbleached pulp, which has not been subjected to bleaching. Accordingly, for this reason, alone, Yamada Nobuo cannot anticipate claim 5, or claims 6 and 9-10, which are dependent from claim 5.

Likewise, Yamada Nobuo does not render the claimed process obvious. In the paragraph bridging pages 2 and 3 of the Office Action, it is indicated that 1) it is known that multiple bleaching steps increase brightness; 2) Yamada Nobuo’s examples appear to indicate that the presence of a peroxide results in a significant increase in brightness; and 3) so that why would it not have been obvious to use additional bleaching steps, etc. to further increase pulp brightness?

Applicants’ response to such comments is that Applicants’ claimed process is not conducted for the purpose of achieving increased pulp brightness during bleaching. Rather,

the purpose of the claimed process is to reduce fading of the bleached pulp over time, regardless of the initial brightness achieved by subjecting the unbleached pulp to a bleaching operation, whether it is a single step bleaching operation or a multiple-step bleaching operation.

Thus, for example, it is seen from Applicants' Fig. 1 that the brightness of the pulp in Examples 1-3 using the method of the present invention is slightly lower at 0.0 UV irradiation time than that of Comparative Example 2 with no laser light irradiation. However, as seen in Fig. 1, the brightness reduction over time of the samples of Examples 1-3 is significantly less than for the sample of Comparative Example 2 for the 2.0 hour test.

Thus, Applicants' method, unlike that of Yamada Nobuo, is not directed to achieving high initial brightness by bleaching unbleached pulp, but is directed to treatment of bleached pulp to reduce fading or a loss in brightness. The reduction in fading achieved by Applicants' process is demonstrated in Figures 1-4 of the present application, which show that when samples of pulp produced by the method of the present invention are irradiated in a fading test, the samples showed very little discoloration over time. In particular, samples irradiated for 40 minutes show very little discoloration and a significant brightness difference as compared with blanks after being tested for fading for 2 hours (page 19, lines 20-27).

It is noted that the comments in the last paragraphs of page 3 of the Office Action as to use of paper versus pulp and remaining comments do not appear to be well taken. As indicated on page 14, lines 5 et seq., pulp that has been bleached can be formed into a sheet or thin layer, if desired, by dewatering to form a pulp sheet, which can be impregnated. The pulp sheet is made of pulp. In the examples, the paper that is formed from a bleached MP (mechanical pulp) is immersed in an aqueous solution for impregnation and thereafter dried to again become dried pulp for fading tests.

New claims 26-28 have been added, which claims further distinguish Yamada Nobuo. Thus, claim 26 depends from claim 5 and recites that an aqueous suspension of the bleached mechanical pulp is dewatered and formed into a pulp sheet, which is then impregnated with said at least one compound selected from the group consisting of reducing agents, peroxides and hydrogen-donating organic compounds. Yamada Nobuo is silent as to dewatering a bleached mechanical pulp to form a sheet, which is then impregnated with reducing agent, peroxide and/or hydrogen-donating organic compound and irradiated. Support for claim 26 is found on page 14, particularly at lines 15-22, and the Examples of the present application, while new claim 27 is dependent from claim 7 and is similarly supported. New claim 28 is dependent from claim 27 and emphasizes the reduction in fading or brightness decrease provided by the present invention. Support for new claim 28 is found in the Examples on pages 16-17 of the application, and particularly in Figure 1 of the drawings.

For the foregoing reasons, the method of Yamada Nobuo does not teach nor render obvious the method of claim 5 or the claims ultimately dependent from claim 5, namely 6 and 9-10. Accordingly, the rejection of such claims as anticipated or obvious over Yamada Nobuo should be withdrawn. Similarly, new dependent claims 26-28 are likewise allowable.

#### **Rejection of Claims 12-14 as Anticipated or Obvious**

Claims 12-14 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, obvious under 35 U.S.C. § 103(a) as obvious over Yamada Nobuo. Since claims 12 and 13 depend from claims 5 and 6, respectively, they cannot be anticipated for the reasons given above. Claim 14 depends from claim 7, which recites that the light is laser light, whose use is neither disclosed or suggested by Yamada Nobuo. Similarly, claims 12-14 cannot be obvious in view of Yamada Nobuo, whose objective is to increase brightness and not to produce a significant and permanent anti-fading effect.

As indicated above, Fig. 1 demonstrates that, contrary to Yamada Nobuo, the initial brightness using Applicant's process can be lower, but the claimed process provides anti-fading effects or reduced discoloration with time. Accordingly, as explained in Applicant's specification (page 14, line 23 to page 16, line 6), although the anti-fading mechanism of Applicant's method is not known in detail, it is assumed to that quinones produced during bleaching are converted into a state that reacts with the reducing agents, peroxides and/or hydrogen-donating organic compounds to promote degradation of the coloring materials or that that the aforesaid materials react with coloring materials, or the like. Regardless of the mechanism, the claimed method produces differences in the pulp product itself, as demonstrated by Fig. 1, thereby rendering product-by-process claims appropriate.

Accordingly, the rejection of claims 12-14 should be withdrawn.

#### **Rejection of Claims 7, 8, 11 and 22-25 as Obvious**

Claims 7, 8 and 11 are rejected under 35 U.S.C. § 103(a) as obvious over Yamada Nobuo as applied in the rejection of claims 5 and 6, in view of Oouchi Akihiko (JP 2002-088673 A).

Yamada Nobuo has been discussed in detail above, and, as previously pointed out, treats unbleached mechanical pulp, but fails to disclose the claimed treatment of bleached mechanical pulp based on the newly-submitted Takahashi English translation. Additionally, Yamada Nobuo is silent as to providing anti-fading properties in his pulp, but is only interested in improving brightness in a bleaching operation. Oouchi Akihiko is similarly defective, since he is also interested in bleaching unbleached pulp by using UV and visible laser light in the presence of hydrogen peroxide. Like Yamada Nobuo, Oouchi Akihiko is silent as to irradiating a pulp containing bleached mechanical pulp. Since neither Yamada

Nobuo nor Oouchi Akihiko disclose laser irradiation of pulp containing bleached mechanical pulp, Oouchi Akihiko cannot remedy the deficiencies of Yamada Nobuo.

Where a reference does not disclose a feature of a claim relied on to distinguish the prior art, it cannot suggest modifying the prior art to contain that feature, see *In re Civitello*, 144 USPQ 10 (CCPA 1964) wherein the CCPA stated:

Since Haslacher fails to disclose the feature of the claim relied on, we do not agree with the Patent Office that it would suggest modifying the Craig bag to contain that feature. The Patent Office finds the suggestion, only after making a modification which is not suggested, as we see it, by anything other than appellant's own disclosure. This is hindsight reconstruction. It does not establish obviousness. (Emphasis the Court's).

See also *In re Glass*, 176 USPQ 489 (1973) wherein the CCPA stated that it is error to ignore specific limitations distinguishing over the references. Moreover, since the objective of both Yamada Nobuo and Oouchi Akihiko is to improve brightness, which is not the anti-fading objective of Applicant's process, as demonstrated by Fig. 1-4 and Applicants' tests in the Examples, the combination of Yamada Nobuo and Oouchi Akihiko is not supportable. Accordingly, the rejection of claims 7, 8 and 11 should be withdrawn.

#### **Rejection of Claims 18-21 as Obvious**

Claims 18-21 are rejected under 35 U.S.C. § 103(a) as obvious over Yamada Nobuo as applied in the rejection of claims 5 and 6, in view of Oouchi Akihiko (JP 2002-088673 A) in further view of Oouchi Akihiko (JP 2002-088671 A).

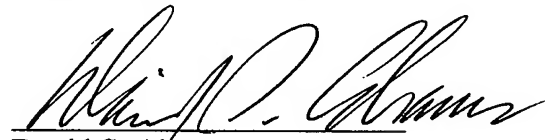
Claims 18-21 are specific to the use of reducing agents to improve anti-fading in bleached mechanical pulp. Neither Yamada Nobuo nor Oouchi Akihiko '673 disclose treating bleached mechanical pulp to improve anti-fading nor do they disclose the claimed treatment in the presence of a reducing agent, sodium borohydride or tetrabutylammonium borohydride.

Oouchi Akihiko '671 does not cure such deficiencies, as neither the treatment of bleached mechanical pulp nor improvement in anti-fading properties by utilizing a reducing agent is disclosed. Since none of the primary, secondary or tertiary published patent applications relied on disclose the claimed treatment of unbleached mechanical pulp, the combination of Oouchi Akihiko '671 with Yamada Nobuo and Oouchi Akihiko '673 cannot render obvious Applicants' claimed process. See *In re Civitello*, cited above.

Accordingly, the rejection of claims 18-21 as being obvious should be withdrawn.

For the foregoing reasons, it is submitted that the claims are in condition for allowance. Such action is earnestly solicited.

Respectfully submitted,



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VERIFICATION OF A TRANSLATION

I, the below named translator, hereby declare that:

My name and post office address are as stated below:

That I am knowledgeable in the English language and in the language in which the below identified application was filed, and that I believe the English translation of the Japanese Patent Publication No. H06-128890 is a true and complete translation of the above-identified Japanese Patent Application as filed.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated this 27th day of September, 2007

Full name of the translator Tatsuro TAKAHASHI

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EXHIBIT

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METHOD FOR BLEACHING PULP

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The first sentence of paragraph [0 0 0 7] of Specification:

The pulp, which is subjected to bleaching, as used in  
this invention, is not limited, and this invention is  
intended to use all the pulp such as mechanical pulp,  
chemical pulp, recycled pulp and the like.

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